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1. EARLY MAIL COACH, 1784.—2. CARRIAGE MADE FOR FREDERICK, PRINCE OF WALES.—3. STATE COACH, TEMP. QUEEN ANNE.—4. STATE COACH MADE FOR GEORGE III.—5. STATE COACH OF JOHN V. OF PORTUGAL, 18TH CENTURY.—6. GARDEN CHAIR, ABOUT 1700.—7. WEDDING COACH OF THE DUKE OF SAXONY, 1584.—8. THE COACH OF THE VENETIAN AMBASSADOR.—9. QUEEN ELIZABETH'S COACH.—10. KING CETEWAYO'S CARRIAGE.—*The Graphic*.

Africa that bear a terrible name in Europe are not so bad as they are painted. Benguella cannot be considered as a bad region, for though there is a scarcity of good water in the town itself, excellent water is obtainable in the wood of Cavaco close by. It is, however, true that the blacks who go in search of the precious liquid are sometimes devoured by wild beasts. The expedition left Benguella by a road entirely different from that followed by Cameron. In my opinion the most precise and accurate observations taken in South Africa are due to Cameron. Cameron was fully aware that explorers should have in view something more elevated than meeting with adventures which may be interesting as narratives. Cameron, therefore, always strove during his travels to be in a position to observe with exactness. One of the reasons which decided our itinerary, after leaving Benguella, was the presence of Anchietta at Caonda. The expectation of meeting with the celebrated Portuguese naturalist caused us the greatest pleasure. Men who expose themselves to such privations may be permitted to enjoy a pleasure of this kind. Anchietta has been 12 years in Africa, and has enriched one of the best African museums in the world, that of the Lisbon Polytechnic School, which is under the direction of Dr. Bocage. The observations taken at Quillengues and Caonda convinced us that there were errors of more than 30 miles in the maps that have been published. The map of the Marquis de Sá da Bandeira, while correct in the fixing of certain positions, contains numerous and important mistakes through not having been drawn up from exact observations. The third day of our journey was the second that we passed without water. In the night the *cassimba* (a heavy dew) fell. The blacks wrung the canvas of the tents to obtain water for the expedition.

We continued in this way till we reached the valley of Dombe Grande, which is the granary of the Province of Angola. It was this valley of Dombe Grande that furnished supplies to the whole province during the three years' drought. We then came in sight of calcareous soil, with a few hawthorns, and afterwards of Quillengues. Caonda is a fortress in a position ably chosen by the ancient Portuguese. It is everywhere surrounded by rivers—permanent rivers—a very rare circumstance in Africa. Many of the rivers of Africa are eddying streams at certain periods, but at other times they disappear. Caonda, while holding an important position, has no commercial importance at the present day. It is, like all the Portuguese settlements in the interior of Africa, in a state of decadence. We here met with our worthy compatriot Anchietta in the woods, but who, notwithstanding, made his appearance wearing a white necktie and a dress-coat, and offered us tea in cups of porcelain of Sevres. On our arrival, Anchietta was hard at work with two microscopes, examining through one the cryptogamic plants, and with the other making observations in connection with comparative anatomy. When Anchietta is not engaged in taking notes of the numerous collections of birds, insects, and reptiles that he has sent to the Lisbon Museum, he may be found at home in his well-stocked library, occupied with his studies. The difficulty of obtaining carriers still continued at Caonda. The chief of the district, who arrived two days after the expedition, had not the least influence over the people in this matter. I applied to the minor potentates of the vicinity, and they promised to aid me. I principally devoted my time to the procuring of carriers, while my companions turned their attention to scientific investigations. I was the commander of the blacks. Now, in those regions seven Sobas, or chiefs, were at that time at war. Armed men were continually passing in all directions, and the consequence was that many carriers took to flight. My companions, Capello and Ivens, went northward to look for carriers, while I went straight to Bihé. A highway robber lived close by. At one time he attacked Quillengues, and when at war with the Portuguese, even reached Mossamedes. He, however, gave me a very kind reception, and furnished me with carriers. When he saw me taking the latitude of his house, he asked me if it were not true that the sun passed over him before it passed over the regions to the west, from which I came. I explained to him briefly the bases of my observation, while the negro, all attention, seemed, by an expression of intelligence, to comprehend my exposition. Before I reached Bihé the journey began to be particularly arduous. My resources began to fail, and on one occasion I fell into a river, in the very middle, and had a long swim for life. Contrary to my expectation, and contrary to all the maps that have been published, it was on this journey that I discovered the source of the River Cubango, to the west of Bihé, and shortly afterward two more affluents. Although I have used at times the words small rivers, the smallest in Africa were almost always enormous ones. It will suffice to compare on the map any of the African rivers with the large rivers of Portugal to be convinced of the ridiculous figure the latter present. The River Cuqueima, which the maps represent as an affluent of the Cubango, and which is in accordance with the opinion of Ladislaus Maggir, I found, to my surprise, running toward the north. Forming a curve, it next flows from the north to the south-west, and thence toward the Quanza, of which it is an affluent. The Cuqueima marks the limits of the country of Bihé. The chief directly governs the principal part of this territory, and has many neighboring chiefs subject to him.

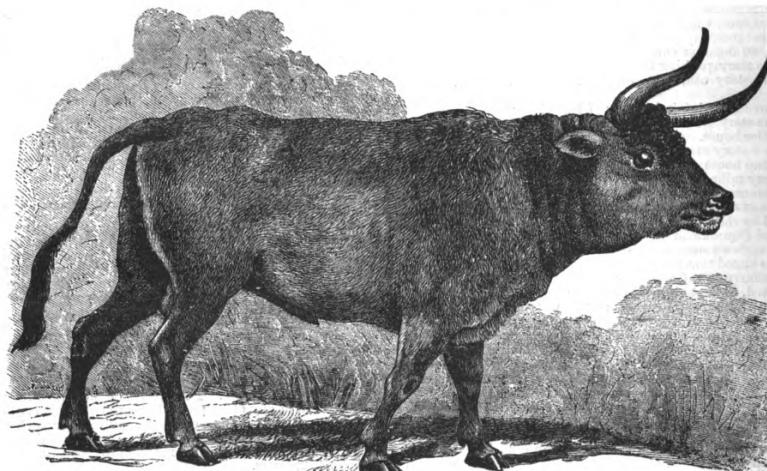
The history of Bihé is very recent. In a letter written by Pinharo Furtado in 1797, and published in 1833, we meet with the name of Bihé. Its origin is not of much older date. A young negro named Bihé, son of the chief of Humbe, on the River Cunene, went northward to Cassay, to hunt elephants, which are still to be found there in the vast equatorial forest. There was only one free settlement on his way, governed by the daughter of a chief. From this Bihé, who married this northern Princesse, sprang the nucleus of the settlement which is at the present day the true Portuguese boundary in the interior. The present chief represents the third generation of the offspring of the before-mentioned couple. Bihé is at present the point of confluence of all the African races of the south-west. Now, Bihé had two sons. To the elder belonged, as is the custom of the country, the governing of the people. But the younger usurped his brother's authority, and the latter went and applied to the Portuguese authorities at Loanda to support his just claims. The Portuguese governor—I regret that I cannot discover his name—supported those claims, and reinstated him, on condition that he and his should always afford protection to the Portuguese. Hence dates the Portuguese establishment in those regions. From that time forward the chief of Bihé never failed to take counsel of the representatives of the Portuguese Government of Angola. This latter custom has at present fallen into disuse, but it would not be difficult to revive it.

The campus at Cornell is illuminated every night with electric lights at the expense of a cent an hour.

#### THE WILD WHITE CATTLE OF GREAT BRITAIN.

**THE REV. J. STORER**, in a recent book published in England, gives some historical information likely to be useful to those who are interested in the breeding of shorthorns. He points out that white semi-domesticated cattle followed the human swarms who moved from the northern forests to overrun Europe. He gives the engraving below of what may be thought to have been the ideal of that bull which seems to have been, for them, now a terrible enemy of the forest depths; now a kind of incarnate heraldic standard under whose sign they fought with men; now as beasts of burden and of the commissariat, their most potent ally in the difficulties of the way. It gives what 300 years ago was the conception, if not the likeness, of the *Bos urus*, which, in turn, was the direct descendant in the middle ages, if not the actual reproduction, of the *Bos primigenius* of prehistoric times. Mr. Storer then gives illustrations of the

does recall instances in which the sun has been abnormally obscured or its light paled to such an extent that stars have come into view in the daytime, and Erman, Humboldt, and other writers have brought these occasions into prominent notice, the former in connection with the presumed passage of dense meteoric streams between the earth and the sun. The earliest mention of such a phenomenon appears to be in the year B.C. 44, about the time of the death of Julius Caesar, when we read in Plutarch and Dio Cassius that the sun was paler than usual for a whole year, and gave less heat, the air continuing cold and misty. The darkness for two hours on August 22, A.D. 358, appears to have preceded the great earthquake of Nicomedia. Two years later in all the eastern provinces of the Roman Empire, we are told there was "caligo a primo aurore exortu adusque meridiem," and the stars were seen, the further description being applicable to a total solar eclipse; but neither the eclipse of March 4, 360, nor that of August 22, would be



SUPPOSED "BOS URUS." FROM GRIFFITH.

present cattle of the Russian steppes, of Hungarian ox teams, of the French Charolais, all of which he conceives to have shared the blood and to possess characteristics of the white cattle of the northern conquerors.

KARL KOCH.

THERE are very few even among professed botanists, who avail themselves to anything like the extent they might do of the teachings of a gardener. And yet for the study of the life history of plants, and for the due estimation of their precise degree of relationship one to the other, a gardener offers in some ways—in many ways—unrivalled opportunities. Karl Koch, whose death we lately recorded, was one of the few who had a right appreciation of the resources of a garden and who knew how to turn them to account. His tall, attenuated form and keen eyes were to be observed at most of the International Botanical and Horticultural Congresses which have been held in various continental cities in London in 1866. Everywhere, by horticulturists as by botanists, his claims to high rank among his fellows and his title to respect and even affection for his personal qualities were acknowledged, so that it became a pain to those who saw him recently to notice his gradually failing powers and to see how the old spirit was curbed and checked by imminent physical health.

Karl Koch was born in Weimar, in June, 1809. In that little capital he came in contact, as a youth, with Goethe, and it was partly owing to his influence and advice that Koch made his visits to the Caucasus and various parts of Asia Minor. Shortly after he had completed his studies in medicine and natural history at Jena and at Würzburg he set out on his travels, his special objects being the investigation of the vegetation and an inquiry into the original sources of our cultivated fruit trees. After two years' research he suffered so severely from the effects of sunstroke in Mount Ararat that he was obliged to return to Jena, but in 1843 set out a second time for the East. Of his first journey an account was published in 1842, under the title of "Travels Through Russia," of his second, in 1845, under that of "Wanderings in the East." A general account of his travels may be found in the *Linnæa* for 1848, in which publication also may be found catalogues and descriptive lists of the plants collected by him, together with remarks on the geographical distribution or plants in the Caucasus, etc. On his return from this second expedition he became Assistant Director of the Botanic Garden at Berlin, Secretary of the Prussian Horticultural Society, and, a few years later, Professor of Botany in the University.

His position at Berlin gave him exceptional facilities for studying cultivated plants, and, accordingly, much of his botanical work consisted of monographs of *Arads*, *Bromeliads*, *Agaves*, and other plants, necessarily imperfectly preserved in herbaria. Many such monographs are scattered through the *Wochenschrift* of the Berlin Horticultural Society, and which was for many years edited by him.

His *magnus opus*, however, is his "Dendrology"—a scientific description of the trees and shrubs cultivated in the forests and gardens of central Europe, a work for which his travels had well prepared him. For the purpose of compiling this volume Koch visited almost every country in Europe. All the great nurseries of the Continent and of our country were also inspected by him with the object of study or of securing specimens.

In private life Koch was beloved for his uprightness, loyalty, and warm-hearted devotion to his friends.—*Nature*.

#### HISTORICAL SUN-DARKENINGS.

NOT a few persons appear to have been much exercised by a prognostication emanating from an American source, whereby the public are forewarned of an approaching period of sun-darkening to extend over several days. History

visible in those parts. Again, when Alaric appeared before Rome, the darkness was such that stars were seen in the daytime (Schnurrer, "Chronik der Seuchen"). Following the *Tablettes Chronologiques* of the Abbé Lenglet Dufresnoy, Alaric invested Rome, A.D. 409, and became master of the city, August 24, 410; there was a visible eclipse of the sun on June 18, of the latter year, therefore while the siege was in progress; but on calculating the circumstances under which it would be seen at Rome, introducing the latest lunar elements, it appears that a little more than half the sun's disk would be covered at the greatest phase about 2h. 40m. P.M., and no sensible diminution of sunlight would be occasioned by the eclipse. In 536, 567, and 626, we find mention of long periods of diminished sunlight. Schnurrer records that in 733, a year after the Saracens had been driven back beyond the Pyrenees, consequent on their defeat at Tours, "the sun darkened in an alarming manner on August 19; there appeared to be no eclipse by the moon, but rather an interruption from some meteoric substance." There was an eclipse of the sun, annular, but nearly total, on the morning of August 14; it is mentioned in the *Saxon Chronicle*, which tells us "the sun's disk was like a black shield." The near coincidence of dates suggests in this case a connection between the darkness and the eclipse. In 934, according to a Portuguese historian, the sun lost its ordinary light for several months, and this is followed by the doubtful statement that an opening in the sky seemed to take place, with many flashes of lightning, and the full blaze of sunshine was suddenly restored. In 1091, on September 29, no 21, as given in some of the translations of Humboldt's *Cosmos*, Schnurrer relates that there was a darkening of the sun which lasted three hours, and after which it had a peculiar color which occasioned great alarm. In another place we read: "Fuit eclipse Solis 11 Kal. Octob. ferre tres horas; Sol circu meridicu dire nigrescet;" there was visible eclipse at this time, and the November eclipse was central only in the southern parts of the earth. A century later, or in June, 1191, according to Schnurrer, the sun was again darkened, with certain attendant effects upon nature; here the cause is easily found; on June 23 there was a total eclipse, in which the moon's shadow traversed the continent of Europe from Holland to the Crimea; the eclipse was total in this country between the coasts of Cumberland and Yorkshire. Erman refers to a sun-darkening on February 12, 1106, which was accompanied by meteors, and we read in the cometographies that on the 4th, or, according to others, on the 5th, of February in this year, a star was seen from the third to the ninth hour of the day, which was distant from the sun "only a foot and a half." Matthew Paris and Matthew of Westminster term this star a comet, and we may take it to have been the same which, later in the same month, was observed in China under the sign Pisces, and which at one time was supposed to have been identical with the great comet of 1680; this body, however, would not appear to have been sufficiently near the earth as, even on the assumption of a denser constitution than usual with comets, to account for a diminution of the solar rays, by its intervention. On the last day of February, 1206, according to a Spanish writer, there was complete darkness for six hours. In 1241, "five months after the Mongol battle of Leignitz," the sun was so obscured, and the darkness became so great, that the stars were seen at the ninth hour about Michaelmas. In this case, again, the darkness referred to was undoubtedly due to the total eclipse on October 6, of which Professor Schiaparelli has collected a full account from the Italian writers. Lastly, in 1547, from April 22–25, Kepler relates, on the authority of Gemma, "the sun appeared as though suffused with blood, and many stars were visible at noonday." Schnurrer thought this phenomenon was what the Germans call a "Hohenrauch," notwithstanding the visibility of stars.—*J. R. Hind in Nature*.